MODEL PAPER MATHEMATICS ELECTIVE CLASS 9

NOTE: Attempt all questions of Section-A by filling the corresponding bubble on the MCQs REPONSE SHEET. It is mandatory to return the attempted MCQs sheet to the superintendent within given time.

Q1: Choose the correct option. Allowed time 20 minutes

Marks 15

1. The matrix $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$ is ______ matrix

a) identity b) scalar c) row d) null

2. The number π is ________ number

a) rational b) irrational c) imaginary d)both rational and irrational

3. If Z= 5-6i the conjugate of Z is

a) 5+6i b) -5+6i c) -5-6i d) 5-6i

4. Base of common log is

a) 0 b) 5 c) 2 d) 10

5. A is skew symmetric if A^t =_________

a) A b) A^t c) –A d)-A^t

6. The additive inverse of $\sqrt{3}$ is_________

a) -$\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) $\sqrt{-3}$ d) -3

7. Additive identity of real numbers R is

a) 0 b) 1 c) -1 d) R

8. For any value of x. x^1 is =_________

a) 0 b) 1 c) -1 d) x

9. $(a+b)^2+(a-b)^2$=__________

a) 4ab b) $2(a^2+b^2)$ c) $a^2-2ab+b^2$ d) a^4-b^4

10. L.C.M=

a) $\frac{A}{H.C.F}$ b) $\frac{A\times B}{H.C.F}$ c) $\frac{H.C.F}{A\times B}$ d) $\frac{B}{H.C.F}$

11. The solution set of $\sqrt{7x+2}-3=2$ is

a) $\frac{23}{7}$ b)$-\frac{23}{7}$ c)2 d)7

12. The point (2,-3) is located in

a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV

13. For all a,b ∈ R, if a=b then b=a is _______ property

a) reflexive b) transitive c)symmetric d) additive

14. Factors of $x^2+2x-24$ are

a) x+4, x-6 b)x-4, x+6 c)x+3, x-8 d)x+8, x-3

15. Evaluate the determinant of matrix $\begin{bmatrix} 5 & 2 \\ -1 & 6 \end{bmatrix}$

a) 32 b) -32 c) 28 d) -28

Section – B

Q1: Attempt any 9 of the following. Allowed time 2 hours 40 minutes

Maximum Marks 36

i. If A= $\begin{bmatrix} 2 & 1 \\ 0 & 7 \end{bmatrix}$ and B= $\begin{bmatrix} -5 & 7 \\ 9 & 2 \end{bmatrix}$ are matrices show that A+B=B+A

ii. Find the product $(a-1)(a^2+a+1)$

iii. Factorize $4x^4+81$

iv. Divide $Z_1=2+3i$, by $Z_2=5-i$

v. If $x = \sqrt{3} - \sqrt{2}$, find the values of $x - \frac{1}{x}$

vi. Find L.C.M by factorization of $x+y$, x^2-y^2

vii. Sum of three consecutive integers is 39, find the integers

viii. Find the solution set of the equation $6x-5=2x+9$

ix. Show that A (-1, 2),B (7, 5) and C(2,6) are the vertices of scalene triangle

x. Prove that $\log_b pq = \log_b p + \log_b q$

xi. If two angles of a triangle are congruent then the sides opposite to them are also congruent.

xii. Prove that each diagonal of a parallelogram divides it into two congruent triangles.

Section – C

Attempt any 4 of the following. Maximum Marks: 24

Q2. The bisectors of angles of triangle are concurrent.

Q3. The lengths of two sides of triangle are 11 and 23 and the length of third side is X. Find the range of possible values of X.

Q4. If a line segment intersects the two sides of a triangle in the same ratio then it is parallel to third side.

Q5. In a right-angled triangle, the square of the length of hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

Q6: Construct triangle **KML** when length of its two sides **ML** and **KM** are 5.4 cm and 3.1 cm respectively and **$m < M = 105^0$**

Q7: Parallelogram on the same base and lying between the same parallel lines (or of the same altitude) are equal in area.